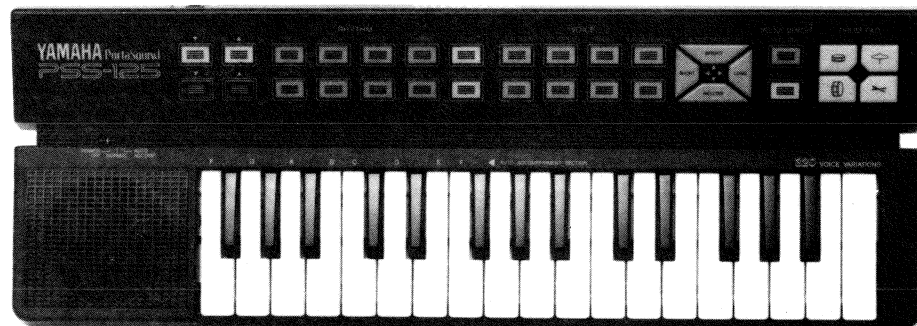


# PortaSound PSS-125

## SERVICE MANUAL

PSS125



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## IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principal relationship of any form.

The data provided is believed to be accurate and applicable to the unit/s indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

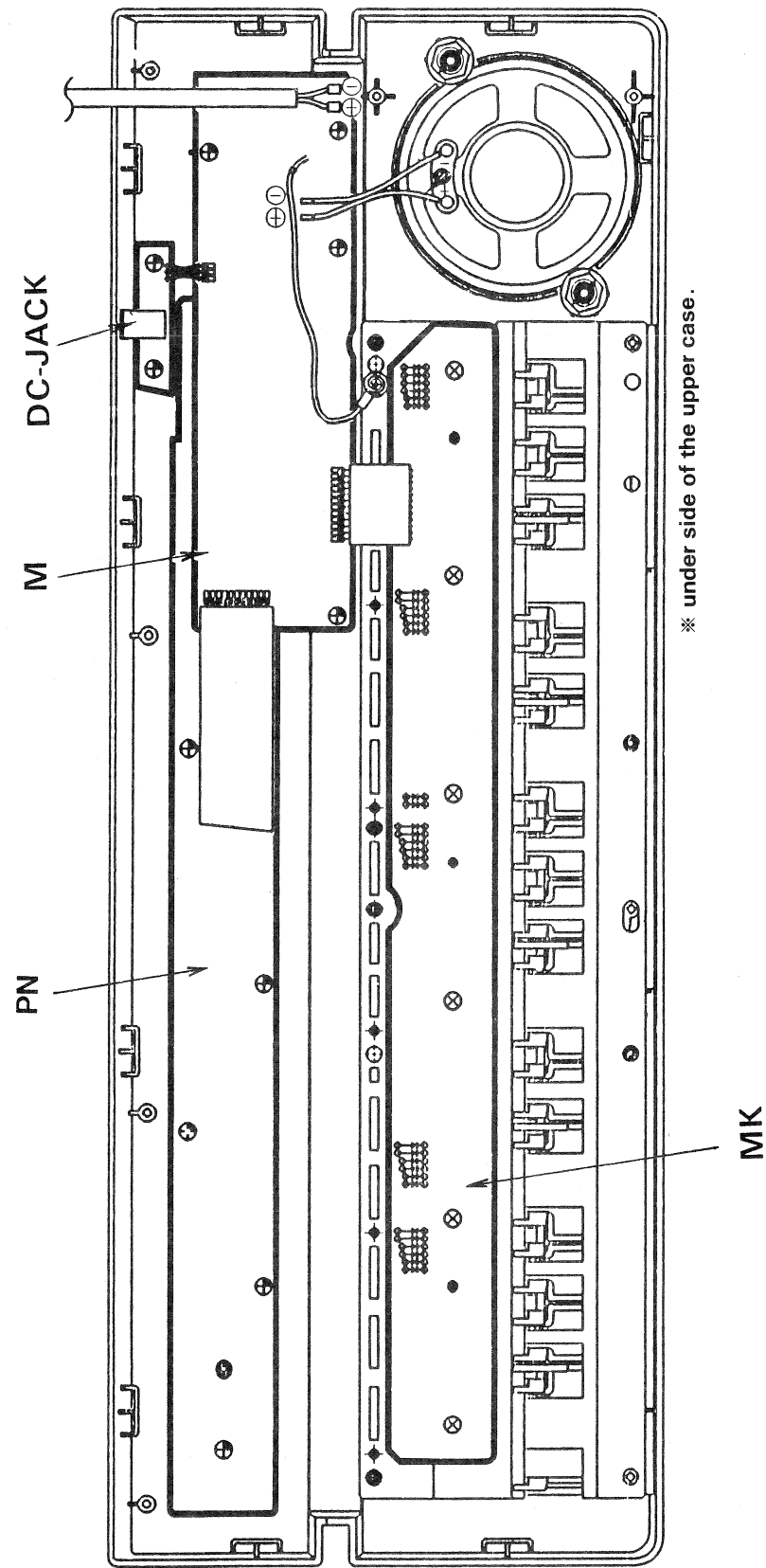
**IMPORTANT:** Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

## ■ SPECIFICATIONS

<b>Keyboard:</b>	32 keys (F1-C4)
<b>Voice:</b>	8 voices Clarinet, Trumpet, Piano, Accordion, Vibraphone, Rock guitar, Mandolin, Fantasy
<b>Rhythm style:</b>	8 styles 8 beat, 16 beat, Tango, Samba, Swing, March, 12 beat, Waltz
<b>Melody Memory:</b>	REC/END, PLAY/STOP
<b>Voice Variator:</b>	Bright, Mellow, Long, Short
<b>Drum Pad:</b>	Bass drum, Snare drum, Claves, Cymbal
<b>Other Controls:</b>	Tempo Controls, Volume Controls, Demo, Rhythm Start/Stop, Power OFF/ NORMAL/AUTO ACCOMP Switch
<b>Terminal:</b>	DC (9-12V) IN
<b>Main Amplifier:</b>	0.7W
<b>Speaker:</b>	7.7cm (4 $\Omega$ )
<b>Rated Voltage:</b>	DC6V (4 $\times$ AA-size, SUM-3, R-6 batteries) AC Power Adaptor (PA-1, PA-1B, PA-3)
<b>Power consumption:</b>	2.5W (with AC adaptor PA-1) 0.3W (with battery cells)
<b>Material:</b>	Styrole resin
<b>Dimensions:</b>	59mm (H) $\times$ 502mm (W) $\times$ 177.5mm (D) (2-1/3" (H) $\times$ 19-5/6" (W) $\times$ 7" (D))
<b>Weight:</b>	1.2kg (2-1/2lb) without batteries



■ CIRCUI T BOARD LAYOUT



LSI DATA TABLE

YM3427 (XF357A00) GE12

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	$\phi$	I	Master clock	9	SCK	I	Clock
2	SI	I	Serial data input	10	IC	I	Initial clear
3	NC			11	NC		
4	NC			12	NC		
5	NC			13	NC		
6	NC			14	NC		
7	SO	O	Data out	15	AO	O	Analog output
8	Vss		Ground	16	Vcc		DC supply

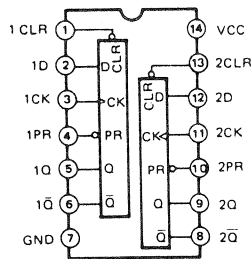
HD6305V0 \* \* \* P (XG724B00) CPU

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	RES	I	Reset	21	C7	I/O	
2	INT	I	Interrupt request	22	C6	I/O	
3	NUM		Ground	23	C5	I/O	
4	A7	I/O		24	C4	I/O	
5	A6	I/O		25	C3	I/O	
6	A5	I/O		26	C2	I/O	
7	A4	I/O		27	C1	I/O	
8	A3	I/O		28	C0	I/O	
9	A2	I/O		29	D0	I/O	
10	A1	I/O		30	D1	I/O	
11	A0	I/O		31	D2	I/O	
12	B0	I/O		32	TX	O	
13	B1	I/O		33	RX	I	
14	B2	I/O		34	CK	O	
15	B3	I/O		35	INT2	I	
16	B4	I/O		36	STBY	I	Stand-by mode signal
17	B5	I/O		37	TIMER	I	Timer control signal
18	B6	I/O		38	XTAL		
19	B7	I/O		39	EXTAL		
20	Vss		Ground	40	Vcc		DC supply (+5V)

IC BLOCK DIAGRAM

TC40H074P (IG055100)

Dual D-Type Flip-Flop



INPUTS				OUTPUTS	
PR	CLR	CLK	D	Q	Q̄
L	H	X	X	H	L
H	L	X	X	L	H
L	L	X	X	H	H
H	H	↑	H	H	L
H	H	↑	L	L	H
H	H	L	X	Q <sub>o</sub>	Q̄ <sub>o</sub>

## ■ DISASSEMBLY PROCEDURE (分解手順)

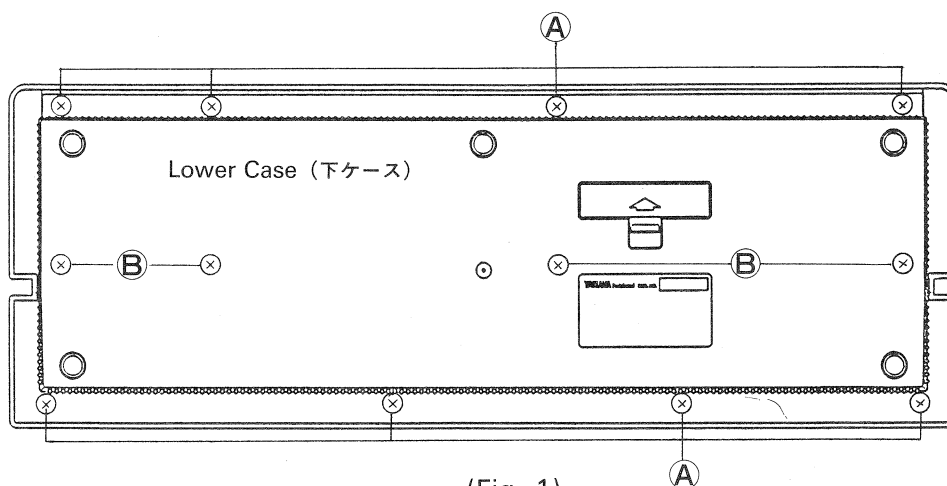
### 1. Lower Case Removal

- 1-1 The Lower case can be removed by removing the twelve (12) screws located on the Lower case, eight (8) screws **A** (bind tapping screw 3.0×8) around the outer edge, and four (4) screws **B** (bind tapping screw 3.0×16). (Fig. 1)

Note : Located on the Lower case are battery terminals.

### 1. 下ケースの外し方

- 1-1 下ケースを止めているネジ**A** (バインドタッピングネジ3.0×8) 8本とネジ**B** (バインドタッピングネジ 3.0×16) 4本を外すと、下ケースを外すことができます。 (Fig. 1)



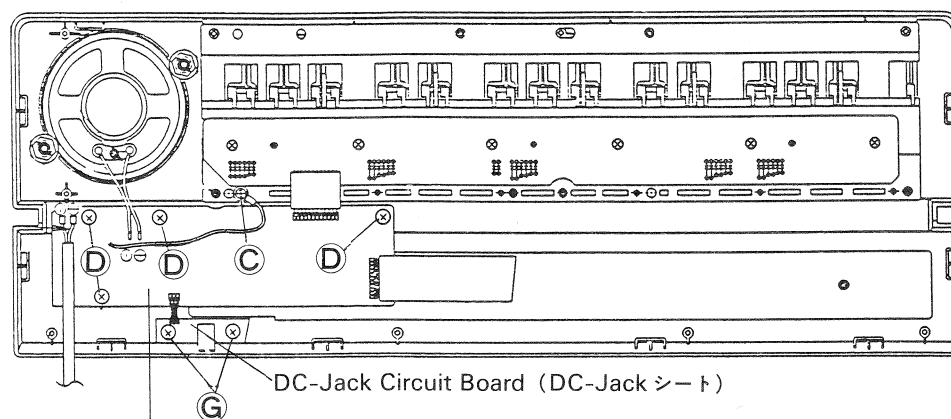
(Fig. 1)

### 2. M Circuit Board Removal

- 2-1 Remove the power switch knob located on the Upper case.  
 2-2 Remove the Lower case. (see procedure 1)  
 2-3 Remove the screw **C** (bind tapping screw 2.6×6) retaining the rug terminal to the MK frame. (Fig. b)  
 2-4 The M circuit board can be removed by removing the four (4) screws **D** (bind tapping screw 2.6×6). (Fig. 2)

### 2. M シートの外し方

- 2-1 パワースイッチつまみを、外します。  
 2-2 下ケースを外します。 (1項参照)  
 2-3 ラグ端子を止めているネジ**C** (バインドタッピングネジ 2.6×6) 1本を外します。  
 2-4 Mシートを止めているネジ**D** (バインドタッピングネジ 2.6×6) 4本を外すと、Mシートが外れます。 (Fig. 2)



(Fig. 2)

### 3. PN Circuit Board Removal

- 3-1 Remove the Lower case.  
(see procedure 1)
- 3-2 Remove the M circuit board.  
(see procedure 2)
- 3-3 To remove the speaker, remove the two (2) self threading nuts ⑤. (Fig. 3)
- 3-4 The PN circuit board can be removed by removing the seven (7) screws ⑥ (bind tapping screw 2.6 × 6). (Fig. 3)

### 4. DC-JACK Circuit Board Removal

- 4-1 Remove the Lower case.  
(see procedure 1)
- 4-2 Remove the M circuit board.  
(see procedure 2)
- 4-3 Remove the PN circuit board.  
(see procedure 3)
- 4-4 The DC-JACK circuit board can be removed by removing the two (2) screws ③ (bind tapping screw 2.6 × 6). (Fig. 2)

### 5. MK Circuit Board Removal

- 5-1 Remove the Lower case.  
(see procedure 1)
- 5-2 The MK circuit board can be removed by removing the six (6) screws ④ (bind tapping screw 2.6 × 6). (Fig. 3)

### 3. PN シートの外し方

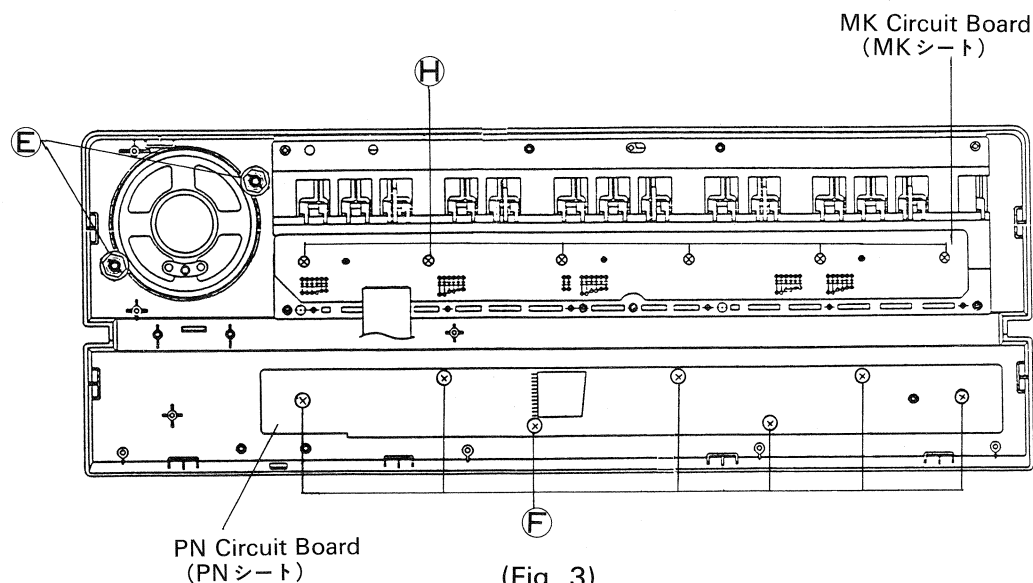
- 3-1 下ケースを外します。 (1項参照)
- 3-2 Mシートを外します。 (2項参照)
- 3-3 セルフスレディングナット⑤ 2ヶを外し、スピーカを外します。 (Fig. 3)
- 3-4 ネジ⑥ (バインドタッピングネジ 2.6 × 6) 7本を外すと、PNシートが外れます。 (Fig. 3)

### 4. DC-JACK シートの外し方

- 4-1 下ケースを外します。 (1項参照)
- 4-2 Mシートを外します。 (2項参照)
- 4-3 PNシートを外します。 (3項参照)
- 4-4 ネジ③ (バインドタッピングネジ 2.6 × 6) 2本を外すと、DC-JACKシートが外れます。 (Fig. 2)

### 5. MK シートの外し方

- 5-1 下ケースを外します。 (1項参照)
- 5-2 ネジ④ (バインドタッピングネジ 2.6 × 6) 6本を外すと、MKシートを外すことができます。 (Fig. 3)



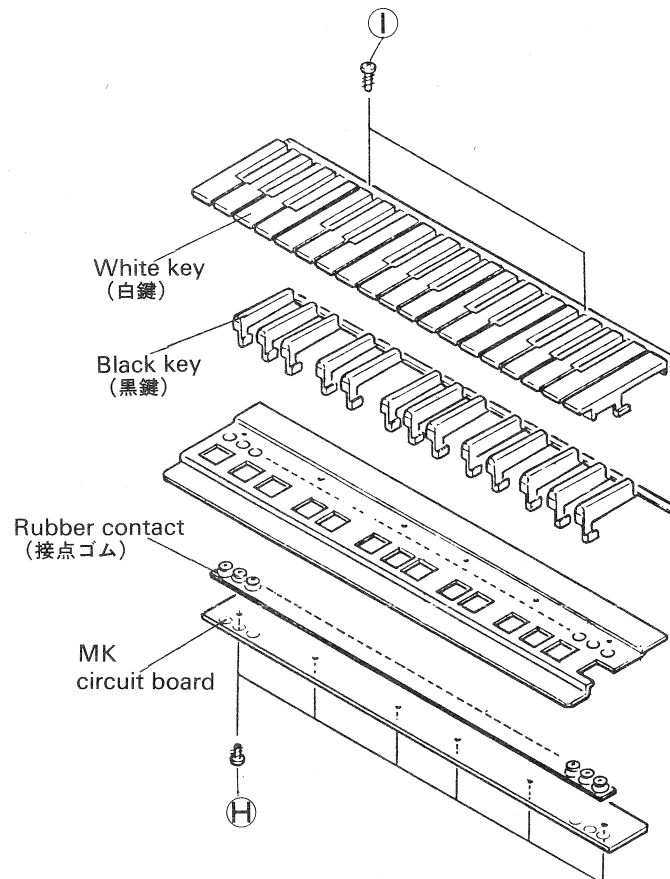


## 6. Keyboard Assembly

- 6-1 Remove the Lower case.  
(see procedure 1)
- 6-2 Remove the screw ③ (bind tapping screw  $2.6 \times 6$ ) retaining the lug terminal to the MK frame. (Fig. 2)
- 6-3 The Keyboard assembly can be taken out from the unit.
- 6-4 To remove the MK circuit board and Rubber contact, remove the six (6) screws ④ (bind tapping screw  $2.6 \times 6$ ). (Fig. 4)
- 6-5 Remove the two screws ① (bind tapping screw  $2.6 \times 10$ ), you can remove the White and Black keys by pulling it backward. (Fig. 4)

## 6. 鍵盤Ass'yの分解

- 6-1 下ケースを外します。 (1項参照)
- 6-2 ラグ端子を止めているネジ③ (バインドタッピングネジ  $2.6 \times 6$ ) 1本を外します。
- 6-3 鍵盤Ass'yを上ケースから外します。
- 6-4 ネジ④ (バインドタッピングネジ  $2.6 \times 6$ ) 6本を外し、MKシートと接点ゴムを外します。 (Fig. 4)
- 6-5 ネジ① (バインドタッピングネジ  $2.6 \times 10$ ) 2本を外すと、黒鍵、白鍵を外すことができます。 (Fig. 4)



(Fig. 4)

## ■ TEST PROGRAM

### 1. Test Entry


While pressing the C4 and B3 keys,  
turn on the POWER switch.

### 2. Switch Check

After the system has entered the test  
program mode, when a Panel switch  
is pressed, a CLARINET tone will be  
produced as shown in the table below.

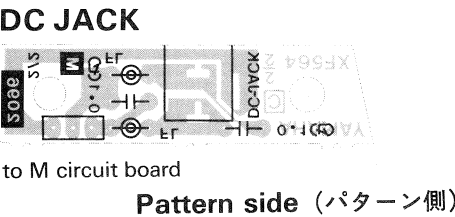
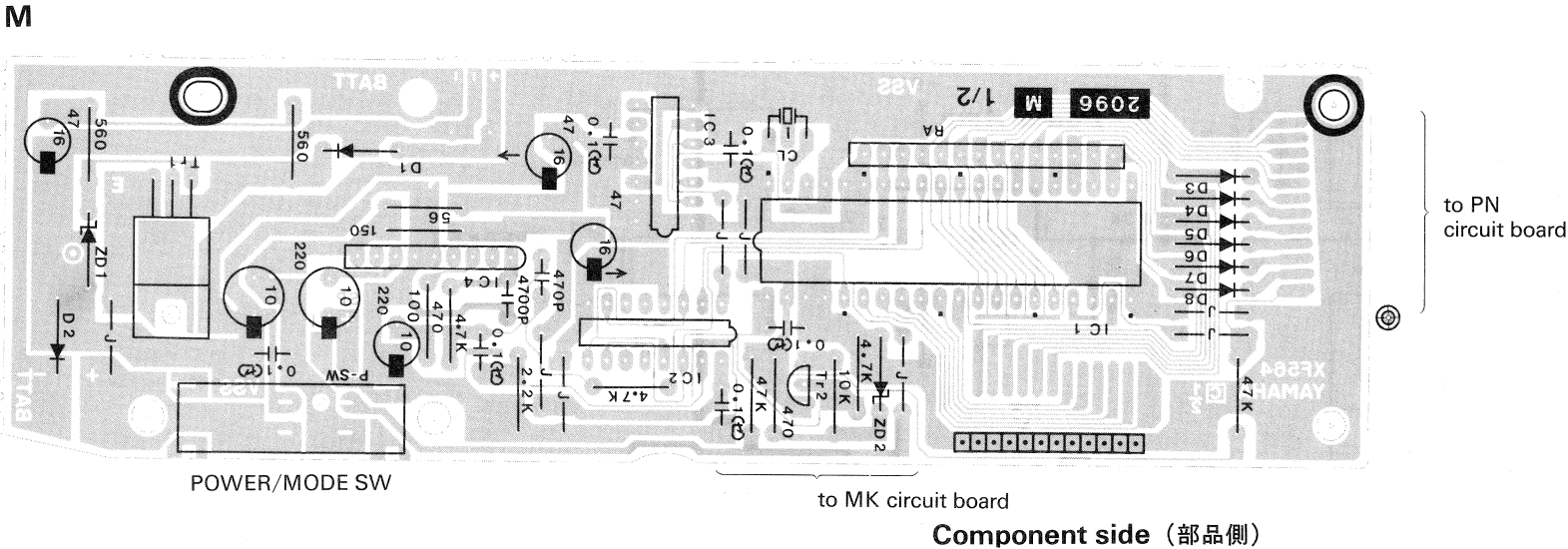
※ VOLUME : maximum VARIATOR : long

If the POWER/MODE switch is set to  
AUTO ACCOMP., a beep tone will be  
produced continuously.

SWITCH	NOTE	SWITCH	NOTE
TEMPO ▼	G #3	PIANO	A #1
TEMPO ▲	A #3	ACCORDION	A1
8BEAT	B3	SHORT	F #2
16BEAT	C4	BRIGHT	E2
TANGO	F #3	REC/END	D2
SAMBA	C3	VIBRAPHONE	A #2
DEMO	B2	ROCK GUITAR	A2
VOLUME ▼	G3	MANDOLIN	G #2
VOLUME ▲	A3	FANTASY	G2
SWING	F3	MELLOW	D #2
MARCH	E3	LONG	F2
12BEAT	D #3	PLAY/STOP	C #2
WALTZ	D3		BASS DRUM
START/STOP	C #3		SNARE DRUM
CLARINET	B1		CLAVES
TRUMPET	C2		CYMBAL

CIRCUIT BOARDS

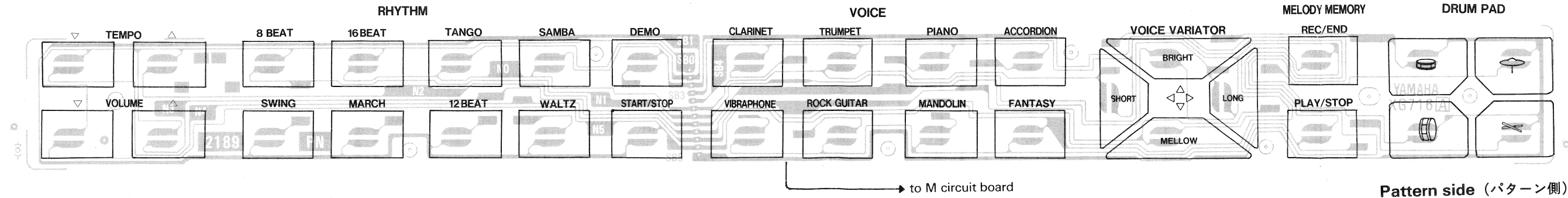
M Circuit Board



Notes)

※ Circuit Board	M (NX004060) XF564C0
1. IC	
IC1 :	HD6305V0 * * * P (XF877B00) CPU
IC2 :	YM3427 (XF357A00) GE12
IC3 :	TC40H074P (IG051100) DFF
IC4 :	TA7368P (XF853A00) P AMP 0.7W 1CH
2. Transistor	
TR1 :	2SD880 O, Y (ID088020) or
	2SD1505 E, F (VE213100)
TR2 :	2SA1115 E, F (IA111510)
3. Diode	
D1, 2 :	1SR35-100A (IH001430) or
	10E-1 (IH000590) or
	11ES4 (VB481900)
D3 ~ 8 :	1SS133 (IF003450)
4. Zener Diode	
ZD1 :	MTZ6.8B 6.8V (IF008910)
ZD2 :	MTZ3.9B 3.9V (IF010600)
5. Resistor Array	
RA :	RGLD13X473J (VH380800)
6. Semiconductive Cera. Cap.	
Marked 0.1 (ㇿ) :	0.1 25V Z (FZ005030)
7. Ceramic Resonator	
CL :	2.78M CST2.78MG (VG913900)
8. Coil	
Marked ㇿ :	20μ FL5R200QNT (VB835000)
9. Slide Switch	
	SSM2X3MB4X12 (VG893500) POWER/MODE

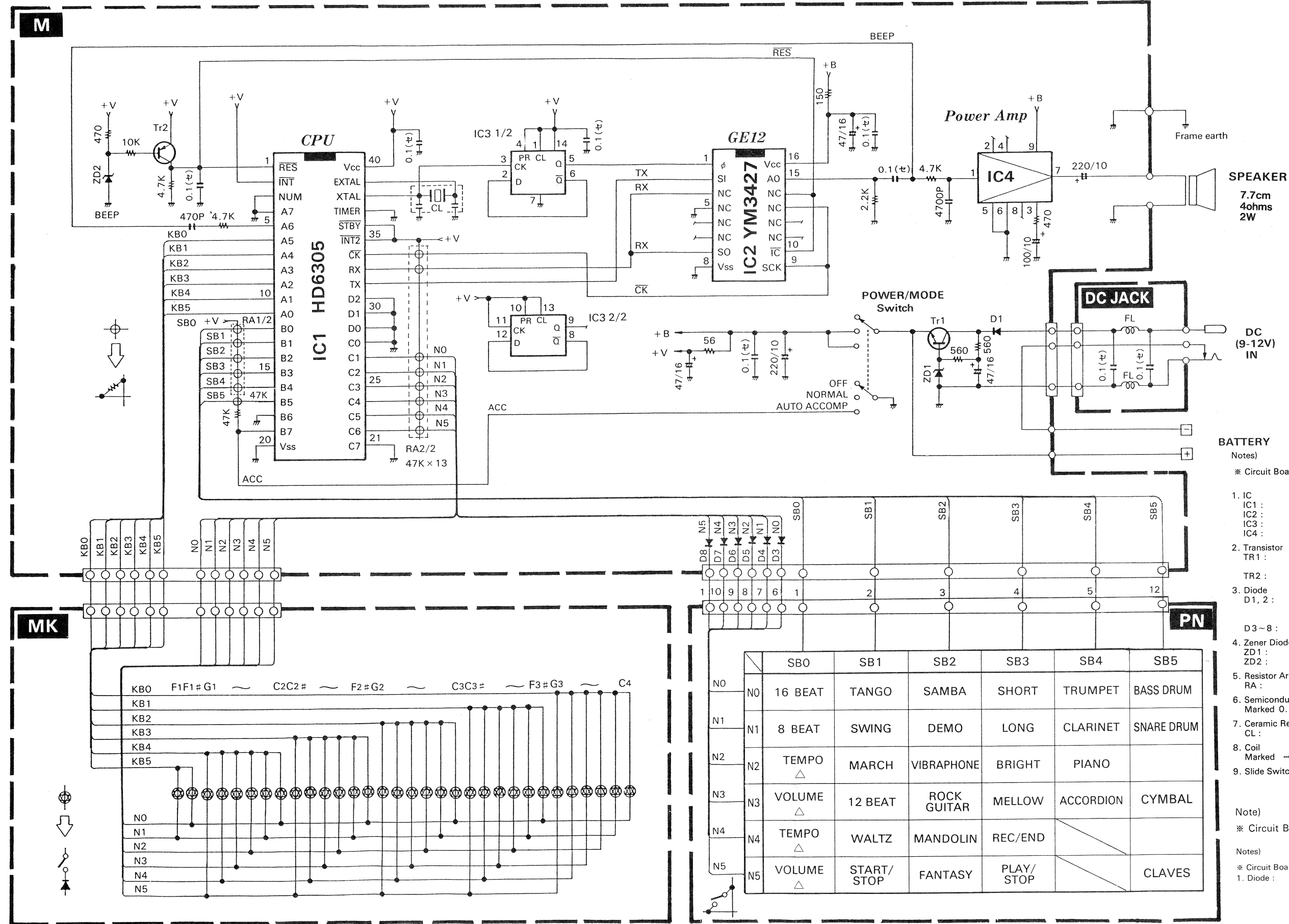
PN Circuit Board



Note)

※ Circuit Board : PN (NX004050) XG716A0

OVERALL CIRCUIT DIAGRAM



SPEAKER  
7.7cm  
4ohms  
2W

DC  
(9-12V)  
IN

BATTERY

Notes)

\* Circuit Board

M (NX004060) XF564C0

- IC  
IC1 : HD6305V0 \*\*\* P (XF877B00) CPU  
IC2 : YM3427 (XF357A00) GE12  
IC3 : TC40H074P (IG051100) DFF  
IC4 : TA7368P (XF853A00) P AMP 0.7W 1CH
- Transistor  
TR1 : 2SD880 O, Y (ID088020) or  
2SD1505 E, F (VE213100)  
TR2 : 2SA1115 E, F (IA111510)
- Diode  
D1, 2 : 1SR35-100A (IH001430) or  
10E-1 (IH000590) or  
11ES4 (VB481900)  
D3~8 : 1SS133 (IF003450)
- Zener Diode  
ZD1 : MTZ6.8B 6.8V (IF008910)  
ZD2 : MTZ3.9B 3.9V (IF010600)
- Resistor Array  
RA : RGLD13X473J (VH380800)
- Semiconductive Cera. Cap.  
Marked 0.1 (t) : 0.1 25V Z (FZ005030)
- Ceramic Resonator  
CL : 2.78M CST2.78MG (VG913900)
- Coil  
Marked  $\ominus$  : 20 $\mu$  FL5R200QNT (VB835000)
- Slide Switch  
SSM2X3MB4X12 (VG893500) POWER/MODE

Note)

\* Circuit Board : PN (NX004050) 0) XG716A0

Notes)

\* Circuit Board : MK (VG756800) XF680A0  
1. Diode : 1SS133 (IF003450) or  
HSS104TA (VD851400)

		SB0	SB1	SB2	SB3	SB4	SB5
N0	N0	16 BEAT	TANGO	SAMBA	SHORT	TRUMPET	BASS DRUM
N1	N1	8 BEAT	SWING	DEMO	LONG	CLARINET	SNARE DRUM
N2	N2	TEMPO $\triangle$	MARCH	VIBRAPHONE	BRIGHT	PIANO	
N3	N3	VOLUME $\triangle$	12 BEAT	ROCK GUITAR	MELLOW	ACCORDION	CYMBAL
N4	N4	TEMPO $\triangle$	WALTZ	MANDOLIN	REC/END		
N5	N5	VOLUME $\triangle$	START/STOP	FANTASY	PLAY/STOP		CLAVES

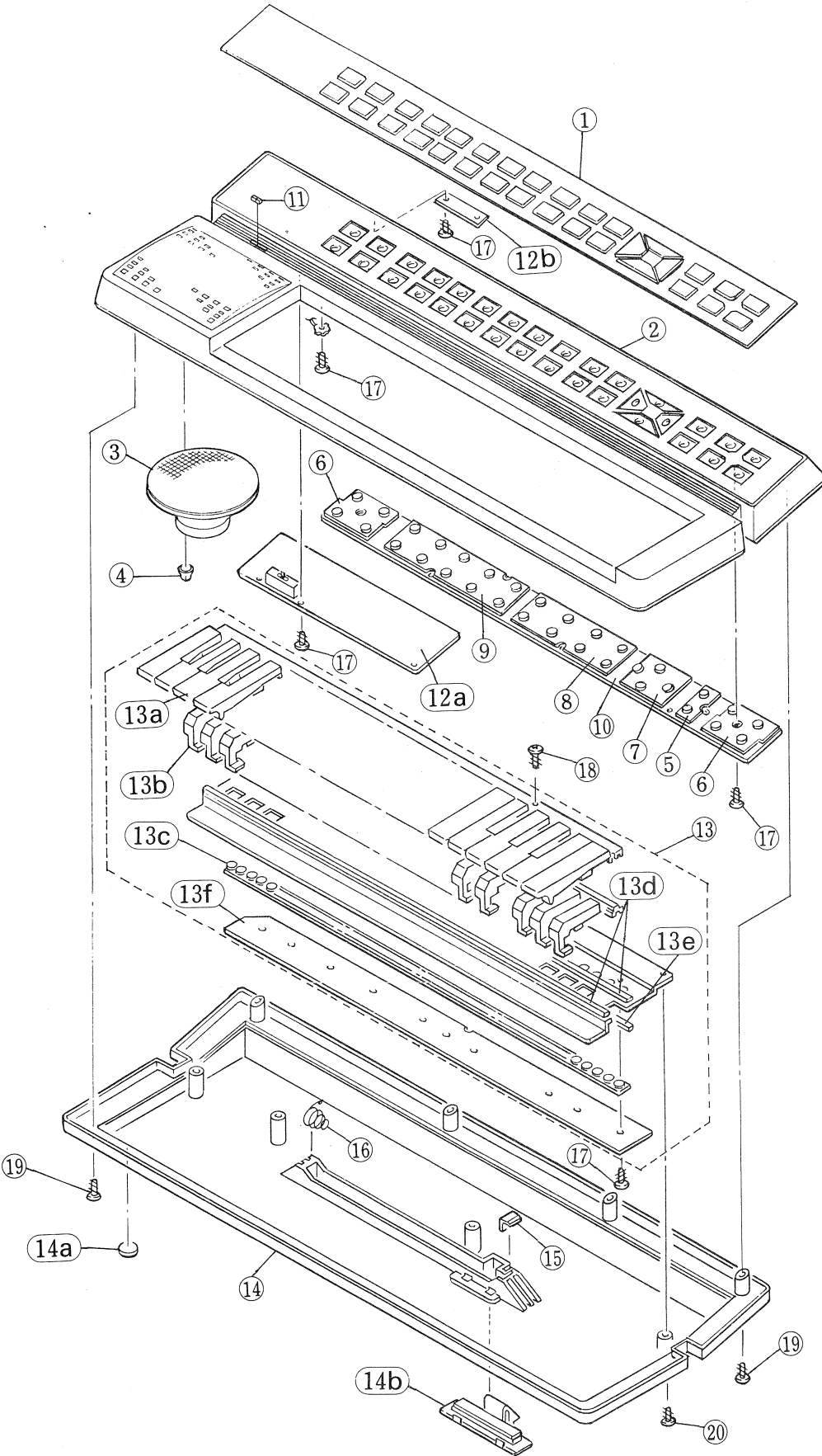
PortaSound

PSS125

PSS-125

# PARTS LIST

OVERALL ASSEMBLY



## OVERALL ASSEMBLY

[illegible]

\* : New Parts (新規部品)

ランク: Japan Only

**PSS125**

## ■ ELECTRICAL PARTS

**3**

ランク: Japan Only